



DRAFT SuMaNu Policy recommendation #3

The Baltic Sea Regional Nutrient Recycling Strategy aims to decrease eutrophication by reducing nutrient inputs to the Baltic Sea. SUMANU has developed a series of Policy Briefs to support the development of this strategy. This policy brief focuses on achieving sustainable use of manure nutrient and reducing nutrient loss at the farm-level. Please note that this is a draft. The final version will be published later.

Support and regulation for best applicable handling technologies for storage and spreading of manure

General

- Country-level standards for manure quantity and nutrient content need to be established for relevant livestock and manure types to ensure sustainable use of manure nutrients.
- Best Available Techniques (BAT) lists for reducing ammonia and GHG emissions from livestock housing, manure storage and spreading should be jointly developed for the Baltic Sea Region and adopted by each country for all livestock producers.

Storage

- Regulations on minimum required storage capacity for manure should be calculated according to the established manure standards so that autumn and winter spreading can be avoided and all manure can be



spread during the spring and summer when crops can maximize nutrient uptake.

- Implementation of BAT (best available techniques) for reducing ammonia and GHG emissions from manure storage should be required from all livestock producers.

Spreading

- Implementation of BAT for reducing ammonia emissions during manure spreading should be required.
- Manure spreading should be concentrated to spring and summer when crop demands for nutrients are highest. Autumn spreading should be limited to establishment of winter crops and otherwise forbidden.
- Manure application rates should be based on the Manure Standards for nutrient content (or other reliable methods for determining nutrient concentration) and the fertilization plan for the field (See SUMANU Policy Brief #2).

Background

Why standard manure values?

Any strategy for sustainable manure nutrient use must start with a reasonably accurate estimation of the nutrients in the manure, so their use can be sustainably planned. Nutrient content in manure varies considerably between livestock types, but can even vary significantly between farms for the same livestock type depending on feeding regimes, production levels, housing and storage conditions etc. Taking an actual sample of manure for laboratory analysis is one method to determine nutrient content and concentration, however, it is often very difficult to get a representative sample of the manure. For this reason, sampling is generally done just before spreading after the storage volume has been well mixed. Alternatively, if the manure is not pre-mixed, sub-samples can be taken from several loads during spreading and then these sub-samples can be mixed to provide a reasonably representative sample. Unfortunately, the analysis results from either of these sample options will not then be ready in time to adjust dosage during spreading.

It is possible to estimate nutrient contents in manure using various calculation models. These models are based on precise feed data and production/growth data per animal category on the farm, plus other relevant data such as

grazing, bedding materials used in housing, water additions, storage conditions etc. The model usually also calculates the manure quantity produced thus enabling nutrient concentrations in manure for fertilization planning. One such model was developed by the project Manure Standards (www.luke.fi/manurestandards/en). While models can provide representative results and account for farm-specific differences and circumstances, they require detailed, accurate, input data in order to be relevant and not all farms have the means to provide the required accuracy of input.

Therefore, the establishing of national standard values for manure quantity and nutrient content, representing a national average, is essential to help all farmers take the necessary steps for storage and spreading of manure and move towards sustainable manure nutrient use.

Why BAT lists for storage and spreading technique?

Currently, at the EU level, only industrial-sized poultry and pig farms are obliged to follow the BAT reference documents published by the Joint Research Center according to the Industrial Emissions Directive. Cattle and dairy farms are excluded from the regulation regardless of their size. Considering the difficulties in significantly reducing the negative impacts of agriculture on the environment and climate, it is time to require all livestock operations to abide by BATs.

Best available techniques for livestock and manure handling are, as time proceeds, a dynamic concept that changes as new techniques develop and shown to be more effective than previous. For this reason, it would be more effective to regularly update the BAT reference list as opposed to updating each regulations and legislation when a new technique is approved.

Since testing new technologies is expensive and time consuming, it would make most sense to jointly within the Baltic Sea Region (BSR) establish evaluation criteria and protocols for approval of new BATs as well as minimum performance levels for reducing ammonia and GHG emissions to be included on the list. A jointly approved and developed BAT list would not only be more resource effective than each country evaluating and developing its own list, but it would also speed the assimilation of new innovative techniques into practice across the BSR.

Why focus on timing?

The main goal of nutrient recycling is to ensure manure nutrients are utilized by crops. The more nutrients in manure that are taken up by plants lowers the potential loss of manure nutrient to the environment and decreases the need for using mineral fertilizer supplements. Crop uptake of manure nutrients is greatly affected by timing of application, which is most effective during early growth stages in the spring and early summer. Late summer or early autumn spreading prior to the establishment of winter crops can also be effective at lower dosage rates. However, in general autumn and winter spreading of manure leads to increased nutrient losses through leaching and runoff since plants are not growing to capture them.

Restricting spreading times to primarily spring and summer months will essentially increase the minimum requirements for manure storage capacity, and therefore it is essential to have good norms for estimating manure production from livestock types and animal categories.

Recommendations concerning national level implementation

- Development and regular updating routine of country-level Standard Values for manure quantity and nutrient content for various relevant livestock and manure types should be organized at a national level through the direction and funding of the Agricultural Ministries. It may be feasible for neighboring countries with similar animal husbandry conditions to collaborate on this.
- Requirements to base manure handling and use on the country-level Manure Standards should be incorporated into national regulations.
- Each country should establish and update BAT lists for storage and spreading for all livestock production, or adopt/modify the lists EU BATs, and incorporate their required use into national regulations.
- Provide investment support for farmers and contractors to invest in BAT listed storage and spreading technologies so all the cost does not fall on the farmers.
- Determination of relevant minimum storage requirements for each country should be calculated by National Agricultural Authorities and incorporated into national regulations.
- Guidelines for recommended spreading times for various crops should be established by the National Agricultural Authorities, as well as guidelines for determining application rates.
- Autumn spreading should be limited to small applications before establishment of winter crops and late autumn and winter spreading should be forbidden.



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